spiral, has an important bearing on this point. However this may be, it is certain that the ring form is one of transition which will some day give place to one more stable. In ages to come the material composing the Ring Nebula in *Lyra* will gather itself together into a central sun, accompanied perhaps by a family of planets, and thus become a mature member of the family of the universe.

ASTRONOMICAL OBSERVATIONS IN 1903.

MADE BY TORVALD KÖHL, AT ODDER, DENMARK.

VARIABLE STARS.

Z Cygni. *

Jan.	1:	*Z* a little < a.	Feb.	25:	a little > c.
	4:	midway between a and b.	May	27:	invisible.
	8:	one step > b.	Aug.	17:	> d. / < c.
	19:	= a.		21:	almost = c.
Feb.	1:	= b.	Sept.	12:	= b.
		< b. / > c.		23:	= a.
	20:	id.		29:	id.
	22:	id.	Oct.	20:	a little > a.

S Ursæ majoris. †

Jan.	1:	S midway between e and f.	March	29:	id.
	4:	two steps < e.	Apr.	2:	= d.
	8:	id.		9:	id.
	13:	one step < e.		14:	id.
	19:	id.		22:	two steps < e.
Feb.	1:	> e. / < d.	May	27:	= g.
	15:	id.	Aug.	17:	three steps < e.
	20:	id.		21:	id.
	22:	= d.		22:	two steps < e.
	25:	one step > c.	Sept.	10:	one step > e.
March	1:	one step > d.		12:	id.
	22:	> d. / < c.		19:	one step < d.
	24:	id.		23:	id.
				25:	id.
				29:	id.
			Oct.	18:	= d.

* *Vide* the sketch in the *Publications* A. S. P., No. 48, p. 69.
† *Vide* the sketch in the *Publications* A. S. P., No. 73, p. 56.

T Ursæ majoris. *

Jan.	1:	three steps > a.	Apr.	2:	= f.
	4:	id.		14:	< g.
	8:	id.		22:	invisible.
	13:	id.	May	27:	id.
	19:	id.	Aug.	17:	one step > f.
Feb.	1:	= a.		21:	= e.
	15:	< a. / > b.		22:	one step > e.
	20:	= b = c.	Sept.	10:	one step > b.
	22:	a little < c. b = c.		12:	id.
				19:	one step < a.
	25:	id.		23:	= a.
March	1:	< c. / > d. } b = c.		25:	id.
	22:	two steps > e.	Oct.	18:	id.
	24:	id.			
	29:	< e. / > f.			

N. B.—Feb. 20–Mar. 1, inclu., was noted b = c; in the BD, b = 8.3 mag.; c = 8.5 mag.

Nova Persei.

		h.	m.			h.	m.
Jan.	1.....	9½ P.M.	9.2	Apr.	2.....	9 P.M.	9.6
	4.....	6	9.2		14.....	9½	10.0
	8.....	6½	9.2		22.....	9½	10.0
	19.....	7	9.4	Aug.	16.....	10	10.1
Feb.	1.....	8	9.6		21.....	9½	10.2
	15.....	8	9.6		22.....	9½	10.0
	20.....	8	9.3	Sept.	12.....	8½	10.2
	25.....	8	9.6		19.....	9	10.0
Mar.	1.....	9	9.6		23.....	9	10.0
	22.....	8	9.6		25.....	8	10.0
	29.....	9½	9.6	Oct	20.....	7½	10.0

In the last two months no observations could be made on account of change of abode and removing of the observatory to another place in the town.

* *Vide* the sketch in the *Publications* A. S. P., No. 22, p. 63.

FIREBALLS.

In the past year twelve fireballs have been seen from stations in Denmark and surrounding countries, as follows: *

No.	Time.	Beginning.	End.	Mag.	Station.	Notes.
1	Feb. 16, 6 h 38 m P. M.	352° + 49°	328° + 17°	♀	Odder.....	A beautiful fireball, turning pale, but suddenly growing up again to a great intensity. Duration, 12 seconds. Also seen in southern Norway.
2	28, 9 36	137° + 20°	195° + 38°	....	Odder, and several places in Denmark and Sweden.	The green meteor exploded twice, viz., in the positions 155° + 40°, and 180° + 42°. In Malmö (Sweden), where the meteor lighted up the whole region, an observer, who occasionally turned his back to the window, saw the image of the fireball in a polished brass lamp. At some places a loud detonation was heard, and the meteor apparently fell into the Baltic Sea. The flash was seen 300 kilometers away in all directions.
3	May 18, 9 30	.....	NW.	....	Rinköbing, and several places in Denmark and Norway.	This meteor passed over the North Sea, and left behind a curious turning and winding train, which remained visible for twenty-five minutes.
4	Nov. 19, 6 45	W. SW.	E. SE. 70° altitude.	....	Kolding	The fireball was seen at several stations, where it lighted up the whole region, and consisted of two meteors, a large one and a little one following it.
5	19, 7 55	.....	N. NE.	....	Haneke.....	Thin clouds covered the sky, when suddenly everything was lighted up from a shine behind the clouds; the meteor itself was not observed, but sixty seconds after its extinction a loud "thunder" was heard from N.NE.
6	19, 8 45	.....	.....	....	Sorö	A flash lighted up the whole region notwithstanding the misty weather. This is the third large meteor on the same evening.

* The details of the six most interesting of these meteors are here given.